

Attached are the relevant papers in support of the proposal to honour Busby's Bore with both the National Engineering Landmark and Information plaques.

- (1) the first engineered city/town water supply scheme in Australia, as distinct from fetching water from a river.
- (2) begun by John Busby, it was endorsed and later completed by Col. George Barney R.E., the first Colonial Engineer.
- (3) it served the City of Sydney and the adjacent suburb of Woolloomooloo, either directly or indirectly, for nearly 100 years.
- (4) all of the tunnel section exists and carries flow which is used to flush nearby sewer lines.
- (5) one shaft is publically accessible within the Museum at Victoria Barracks.
- (6) the significance of the work to Sydney's survival and development is acknowledged by historians and engineers, and has been classified by the National Trust.

ENGINEERING MARKER PROGRAMME

To: The Institution of Engineers, Australia,
Engineering Marker Sub-committee,
11 National Circuit,
Barton, A.C.T. 2600.

Date: Feb 1987

From: Engineering
Heritage Committee,
Sydney Division,
I. E. Aust
(name of Division or
Committee).

This is to nominate the following Work for Historic Engineering Marker or
National Historic Engineering Landmark treatment (please delete whichever
does not apply)

(Name of Work) BUSBY'S BORE

Located at SYDNEY

State NSW Please furnish

the address (and map grid reference if a fixed Work) CENTENNIAL PARK

TO HYDE PARK

The Work is owned by METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD

In support of this nomination the following information is provided:

(A) For dedicating an Historic Engineering ~~Marker~~ Information plaque AND
1. Proposed wording on Marker plate National Engineering Landmark

1. Proposed wording on Marker plate

see attached papers — to be approved by MWS&DB

2. Justification of claims made in citation:

see attached papers

CHAPTER II

BUSBY'S BORE—SYDNEY'S SECOND SOURCE OF
WATER SUPPLY, 1830-1858

JOHN BUSBY, who arrived in the colony from England in February, 1824, as Mineral Surveyor to the Government, recommended that water from the Lachlan Swamps (now Centennial Park) be delivered by a tunnel or "bore" to a 15-million gallon reservoir at the Racecourse (now Hyde Park). The tunnel, but not the reservoir, was approved, and legislative authority for construction and maintenance was given by the first Water Supply Act of Australia, the Water Tunnel Act (4 William IV No. 1) passed in 1833.

Work on the tunnel started in September, 1827, at the south-eastern corner of Hyde Park. Because of the unmanageable and unskilled nature of the convict labour and unforeseen difficulties in the strata, the tunnel was not completed until 1837, when Sydney was again in the grip of a prolonged drought. As work had proceeded, however, seepage springs were tapped and in 1830 these began to supply sufficient drinkable water to the public by means of a pipe carried on trestles a short distance into Hyde Park to facilitate the filling of water carts. Later, in 1833, the water was carried in pipes to the Port for the use of shipping and sold at 1s. od. per ton.

Busby's tunnel commenced at a point near the present Cleveland Street entrance to Centennial Park. It passed under the Agricultural Society's ground and the old Paddington Rifle Range, then under Park Road and the grounds of Victoria Barracks. It ran under Oxford Street near Flinders Street and ended in Hyde Park near the Oxford Street entrance. The line of pipes already mentioned extended from the end of the tunnel to a point near the corner of Park and Elizabeth Streets, where the regulator was fixed and the supply drawn off into water carts and other receptacles.

The bore was a little more than $2\frac{1}{2}$ miles long and averaged 5-ft. high and 4-ft. wide. It had 28 vertical shafts ranging from 20-ft. to 28-ft. deep. The removal of 255,930 cubic feet of spoil, mostly rock, was involved, and the whole project is reputed to have cost £24,000.

BUSBY'S BORE

THIS TUNNEL OR "BORE", CUT MOSTLY THROUGH SANDSTONE, CARRIED FRESH WATER 3.5 KM FROM THE LACHLAN SWAMPS (CENTENNIAL PARK) TO HYDE PARK. IT WAS PLANNED AND SUPERVISED BY JOHN BUSBY, GOVERNMENT MINERAL SURVEYOR, AND CONSTRUCTED BY CONVICT LABOUR 1827-37. IT SUPERSEDED THE TANK STREAM AND ALONE PROVIDED SYDNEY AND DEPARTING SHIPS WITH AN UNFAILING WATER SUPPLY UNTIL 1886. BUSBY'S BORE WAS THE FIRST ENGINEERED WATER SCHEME IN AUSTRALIA.

THE INSTITUTION OF WATER THE CENTENNIAL
ENGINEERS, AUSTRALIA BOARD PARK TRUST

APRIL 1988

What time, the entire area around Victoria Barracks was known as the Lachlan Swamps and it is believed that a prime consideration in choosing the site was because of the existence of Busby's Bore and the two access shafts already extended to the surface. This provided an adequate and readily available supply of fresh water for the regiment.

The architect of Victoria Barracks was Lieutenant Colonel George Barney of the Royal Engineers, who also designed Darlinghurst Gaol and Fort Dennison.

As the population grew, the demand for water was augmented by the introduction of the Botany System in 1859, and although it took over as the primary source of supply, Busby's Bore continued to serve parts of the city and Woolloomooloo. Pollution slowly began to infiltrate the system and eventually Busby's Bore was only used to flush creeks and ponds in the Botanic Gardens.

The tunnel faded from the news and lay almost forgotten until 1934 when part of the tunnel as far as Riley Street was under threat of collapse beneath Oxford Street. To rectify the situation, this section of the tunnel was subsequently flooded with sand.

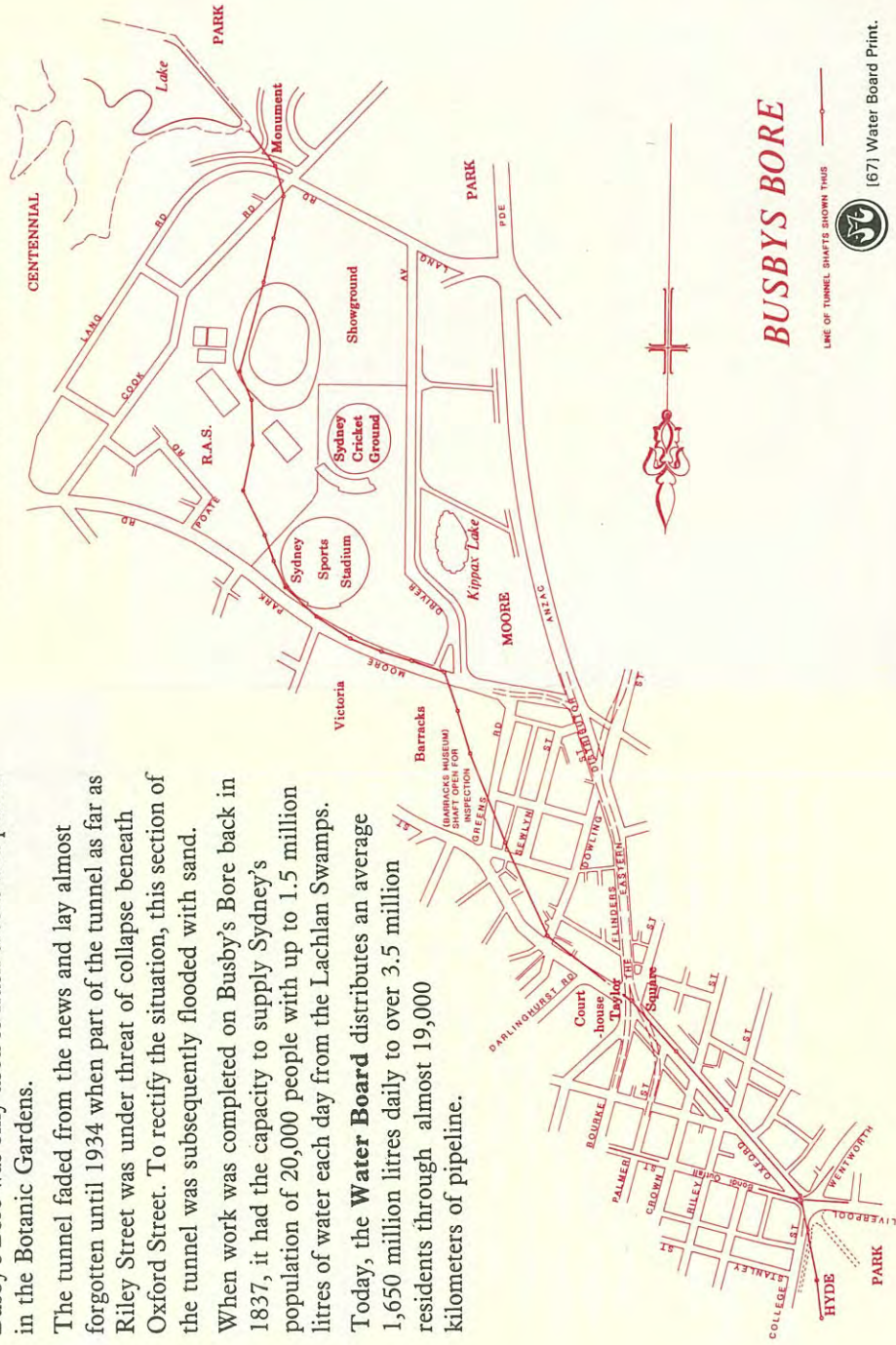
When work was completed on Busby's Bore back in 1837, it had the capacity to supply Sydney's population of 20,000 people with up to 1.5 million litres of water each day from the Lachlan Swamps.

Today, the **Water Board** distributes an average 1,650 million litres daily to over 3.5 million residents through almost 19,000 kilometers of pipeline.



Above: Excavated by Convicts, the Bore served Sydney for almost 60 years, until the first Nepean water service in 1886.

Although a far cry from the humble 3.6 kilometers of tunnel hewn out from the rugged colonial terrain 160 years ago, Busby's Bore remains an enduring testimony to John Busby's imagination and a graphic reminder of Australia's colorful convict heritage.



BUSBYS BORE

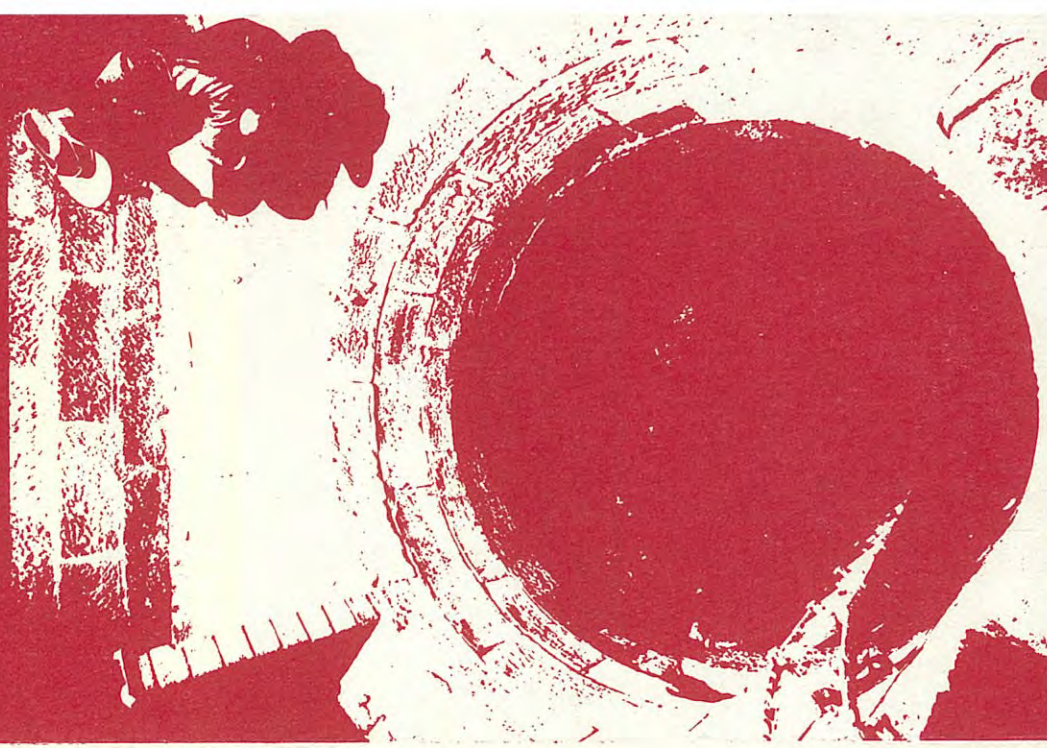
LINE OF TUNNEL SHAFTS SHOWN THIS



[67] Water Board Print.

Busby's Bore

Sydney's first piped water supply



For Sydney's first settlers, the only source of fresh water came from The Tank Stream, a small rivulet running through the centre of the fledgling colony. It was the life line for both convicts and free settlers alike.

As Australia's birthplace grew, the tiny tank stream began to fail, and with a rapidly expanding population pushing inland to the west, the dwindling water supply became so polluted by the 1820s, the very survival of the colony was at risk. An alternative and reliable supply of fresh water had to be found.

In 1824, Governor Darling allocated the task to John Busby, an engineer who had arrived in the colony to take up the position of Government Mineral Surveyor.

He proposed that water be taken from Lachlan Swamps (now Centennial Park) and from there, conveyed through an underground tunnel or 'bore' to the city centre for distribution at the colony's racecourse, the site of the present day Hyde Park.

The Lachlan Swamps area was a low lying marsh containing a plentiful supply of fresh, clean water. The swamp was part of a rough, sandy region known as Macquarie Reserve and included the areas now bounded by Moore Park, the Royal Agricultural Society Showground and the new Sydney Sports Stadium.

In 1827, using convict labour under John Busby's direction, work commenced at the Hyde Park end on what was to be Sydney's first piped water supply.

The project began in a flurry of activity and day by day, excited townspeople and Government officials

voiced favourable reports as to the expected speedy progress by Busby and his teams of convict labourers. Estimations varied greatly as to the expected completion date but hopes were high as to the colony having its new clean water supply within a few years. This, however was not to be. Because of unknown difficulties in the strata and what historians of the day described as problems with the 'unmanageable and unskilled character of the convict labour', the project was not completed until 1837.....ten years later.

Excavated by hand, the bore stretches over a distance of 3.6 kilometers under the city and varies from 1.2 to 1.5 metres wide and is up to 3 metres high in places. The tunnel follows a somewhat erratic course, and as recent explorations have shown, several dead-end 'spurs' are incorporated in the construction. This is due largely to the fact that although he was assisted in the work by his two sons, William and Alexander, Busby seldom went into the tunnel, as in the main, the majority of convicts were 'most disagreeable

gentlemen'. Because of this, Busby preferred to direct the excavation as best he could in relative safety from above ground, relying on progress reports furnished by the less disagreeable members of his working staff.

Initially, it was intended to construct a 65 million litre reservoir at the outlet in Hyde Park, but this idea was abandoned for a design that allowed water from the bore to be piped across Hyde Park on trestles with a final distribution point near the corner of Elizabeth and Park Streets. From here, water was distributed throughout the rapidly expanding city by way of horsedrawn water carts.

Above: John Busby and inside the Bore.

Left: Busby's Bore in Hyde Park.

In the 1840s, construction began on the city's first water reticulation pipes, laid from the bore to various parts of the township.

During and after construction, numerous shafts and wells were tapped into the bore (28 have been located to date) including those at Victoria Barracks. The shaft that can be found in the corner of the barracks Museum was used once to supply the barracks with water. It is over 22 metres deep and when in use, water was hauled to the top using two 55 litre buckets. Teams of military prisoners were used to raise the water, the total weight of buckets, chain and water on each haul exceeding 1.200 kilos. Another shaft, now covered by extensions to the Officers' Mess, supplied water to the former hospital.

Victoria Barracks were the third military barracks constructed in the colony and in the 1830s, replaced the George Street barracks which had become a victim of the ever increasing demand for land in the town centre.

